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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,173	11/25/2003	Steven Glenn Keener	02-1231(BOE0391)	1172

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EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT PAPER NUMBER

1742

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/707,173

Applicant(s)

KEENER, STEVEN GLENN

Examiner

George P. Wyszomierski

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 14-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/23/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. The terminal disclaimers filed on February 14, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on application serial nos. 10/338,059 or 10/982,338 have been reviewed and are accepted. The terminal disclaimers have been recorded.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 and 14-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Choi et al. Journal of Alloys and Compounds article (cited on the attached PTO-1449 form), in view of Carter et al. (U.S. Patent 3,017,299) or Shibue et al. (U.S. Patent 5,372,663), and further in view of pp. 586-591 and 608-620 of the ASM Handbook.

The Choi article discloses a process which includes cryogenically milling a relatively coarse grained titanium alloy thereby resulting in a relatively finer grained material in the range of a number of nanometers, followed by densifying the material by e.g. vacuum hot pressing. The milling in Choi is done with a stearic acid additive, and the atmosphere includes argon. With respect to instant claims 15, 16, 19, 20, 29, 30, 33 and 34, the examples of powder prepared by cryogenic milling in Choi have a grain size of 16 nm; it is axiomatic that at some point during the milling process the Choi materials would have had a grain size within the limits

as recited in the instant claims, i.e. every size smaller than the original size yet larger than the final size of Choi would be achieved by that process. Choi does not specify the degassing or forming steps as recited in the instant claims. However,

a) Both Carter et al. and Shibue et al. indicate that it was known in the art, at the time of the invention, to degas titanium alloys, and these patents further describe the advantages of employing a degassing step. Therefore the examiner's position is that it would have been obvious to incorporate a degassing step into the process as described by Choi et al.

b) The cited excerpts from the ASM Handbook indicate that the various types of forming set forth in the instant claims (e.g. extruding, cold working), as well as the subsequent steps as recited in instant claims 3 and 25-28 were known at the time of the invention to be conventional steps in the art of titanium alloy processing.

Thus, the disclosure of Choi et al., together with those of Carter or Shibue et al. and the ASM Handbook, would have taught the process as presently claimed to one of ordinary skill in the art.

4. Claims 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest processes involving alloys as recited in these claims.

5. Applicant's submission of an Information Disclosure Statement (IDS) including non-patent literature references on November 23, 2005 (subsequent to the prior Office Action) prompted the new ground(s) of rejection presented in this Office action.

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Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GPW  
April 19, 2006

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1742